

EXHIBIT L

Exhibit L

Exemplary Chart for the '682 Patent
Infringement of U.S. Patent No. 10,135,682 by Spectrum Accused Services

#	U.S. Patent No. 10,135,682	Spectrum Accused Services
1a	A method comprising:	The Accused Services perform the claimed method utilizing, for example, including a Cable Modem Termination System ("CMTS") operated by Spectrum and at least one cable modem located at each subscriber location, including, for example, the Spectrum PC20, and products that operate in a similar manner. By way of example, the Arris E6000 CMTS is charted herein.
1b	determining, by a cable modem termination system (CMTS), for each cable modem served by said CMTS, a corresponding signal-to-noise ratio (SNR) related metric;	<p>The Arris E6000 CMTS determines, for each cable modem served by said CMTS, a corresponding signal-to-noise ratio (SNR) related metric.</p> <p>Spectrum started using Arris CMTS's as early as 2014, including the E6000, Arris' CMTS that added video edge QAM components and became a fully integrated Converged Cable Access Platform. The E6000's capabilities are described, for example, in the E6000 Manual.</p> <p>Spectrum continues to use CMTSs like the E6000 to send and receive packets to downstream cable modems over the Internet. For the purposes of this analysis, the PC20 will be assessed. However, Spectrum's services are compatible with a variety of cable modems for consumers to utilize in conjunction with their services.</p> <p>Cable modems, such as the PC20, include chips capable of receiving and transmitting performance data to the CMTS, such as Broadcom's BCM3390 system-on-a-chip ("SoC")</p>

Exhibit L

#	U.S. Patent No. 10,135,682	Spectrum Accused Services
		 <p>Accordingly, cable modems, such as the PC20, are capable of bidirectional communications with upstream CMTSs, such as the E6000.</p> <p>Spectrum utilizes its CMTSs to determine a corresponding signal-to-noise ratio (SNR) related metric for each cable modem served by said CMTS. For example, according to the E6000 user manual, the CMTS utilizes a powerful spectral analysis engine built into every upstream receiver to gather detailed information about upstream channel noise.</p>

Exhibit L

#	U.S. Patent No. 10,135,682	Spectrum Accused Services
1c	assigning, by said CMTS, each cable modem among a plurality of service groups based on a respective corresponding SNR-related metric;	A service group includes one or more modems. The Arris E6000 CMTS assigns each cable modem among a plurality of service groups based on a respective corresponding SNR-related metric. Specifically, the Arris E6000 CMTS utilizes a process of profiling downstream modems.
1d	generating, by said CMTS for each one of said plurality of service groups, a composite SNR-related metric based at least in part on a worst-case SNR profile of said SNR-related metrics corresponding to said one of said plurality of service groups;	The Arris E6000 CMTS generates, for each one of said plurality of service groups, a composite SNR-related metric based at least in part on a worst-case SNR profile of said SNR-related metrics corresponding to said one of said plurality of service groups. Specifically, the Arris E6000 CMTS generates SNR-related metrics based on a worst-case SNR profile of each service group. For example, the Arris E6000 CMTS optimizes a modulation profile based on worst-case noise that is expected on the upstream channel and still achieve a reasonable level of performance.
1e	selecting, by said CMTS, one or more physical layer communication parameter to be used for communicating with said one of said plurality of service groups based on said composite SNR-related metric; and	The Arris E6000 CMTS selects one or more physical layer communication parameter to be used for communicating with said one of said plurality of service groups based on said composite SNR-related metric. Specifically, the Arris E6000 CMTS selects one or more physical layer communication parameters to be used for communicating, via a physical layer, with each service group of downstream modems. For example, the Arris E6000 CMTS selects one or more physical communication parameters that control modems in the various upstream channels, which have been configured via the modulation profiles. For example, when adding additional forward error correction to attempt to correct for upstream errors is no longer efficient, a lower modulation rate (e.g. a physical layer communication parameter) is applied to a particular service group.

Exhibit L

#	U.S. Patent No. 10,135,682	Spectrum Accused Services
1f	communicating, by said CMTS, with one or more cable modems corresponding to said one of said plurality of service groups using said selected one or more physical layer communication parameter.	The Arris E6000 CMTS communicates with one or more cable modems corresponding to said one of the plurality of service groups using the selected one or more physical layer communication parameter. Specifically, Spectrum communicates, via its CMTSs (such as the Arris E6000 CMTS), messages that include parameters that control cable modems in one of said plurality of service groups in the various upstream channels. These communications utilize the selected one or more physical layer communication parameters.